

The Harman Kardon Model CD91

Manual No. 51B

ULTRAWIDEBAND LINEAR PHASE CASSETTE DECK

Technical Manual

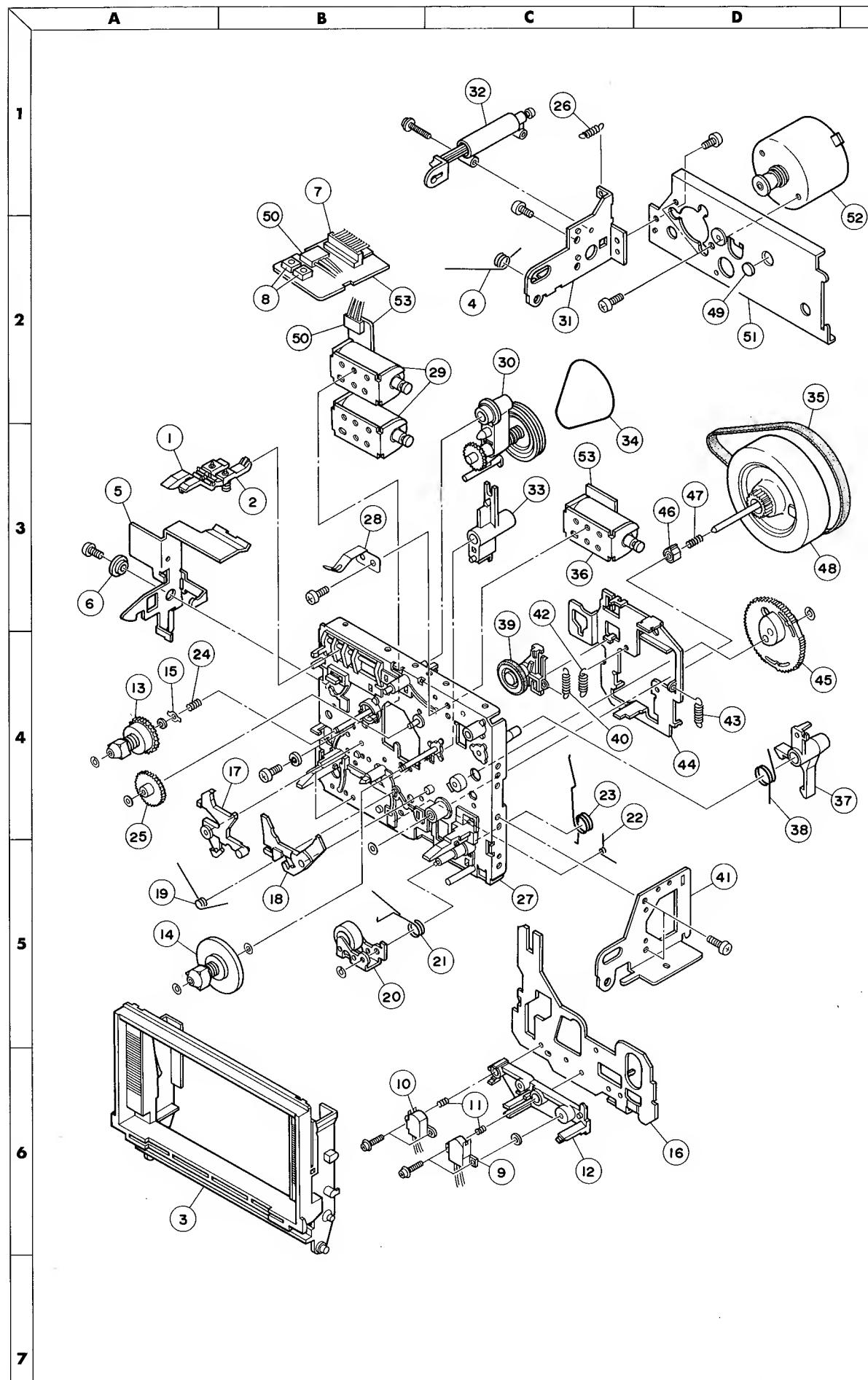


SUPPLEMENTARY MANUAL

THE CASSETTE MECHANISM WAS REVISED AT SERIAL NUMBER 27001. FOLLOWING IS THE COMPLETE PARTS LIST AND ASSEMBLY DRAWINGS OF THE REVISED CASSETTE MECHANISM. ALSO, SOME REVISIONS IN THE CIRCUITRY ARE INCORPORATED. REFER TO TECHNICAL MANUAL NO. 51A FOR ALL OTHER REPLACEMENT PARTS AND SERVICE INFORMATION EXCEPT FOR THE CHANGES AS NOTED IN THIS SUPPLEMENT.

harman/kardon
240 CROSSWAYS PARK WEST, WOODBURY, N.Y. 11797
1112-H15251B1 P-088412 1250 PRINTED IN JAPAN

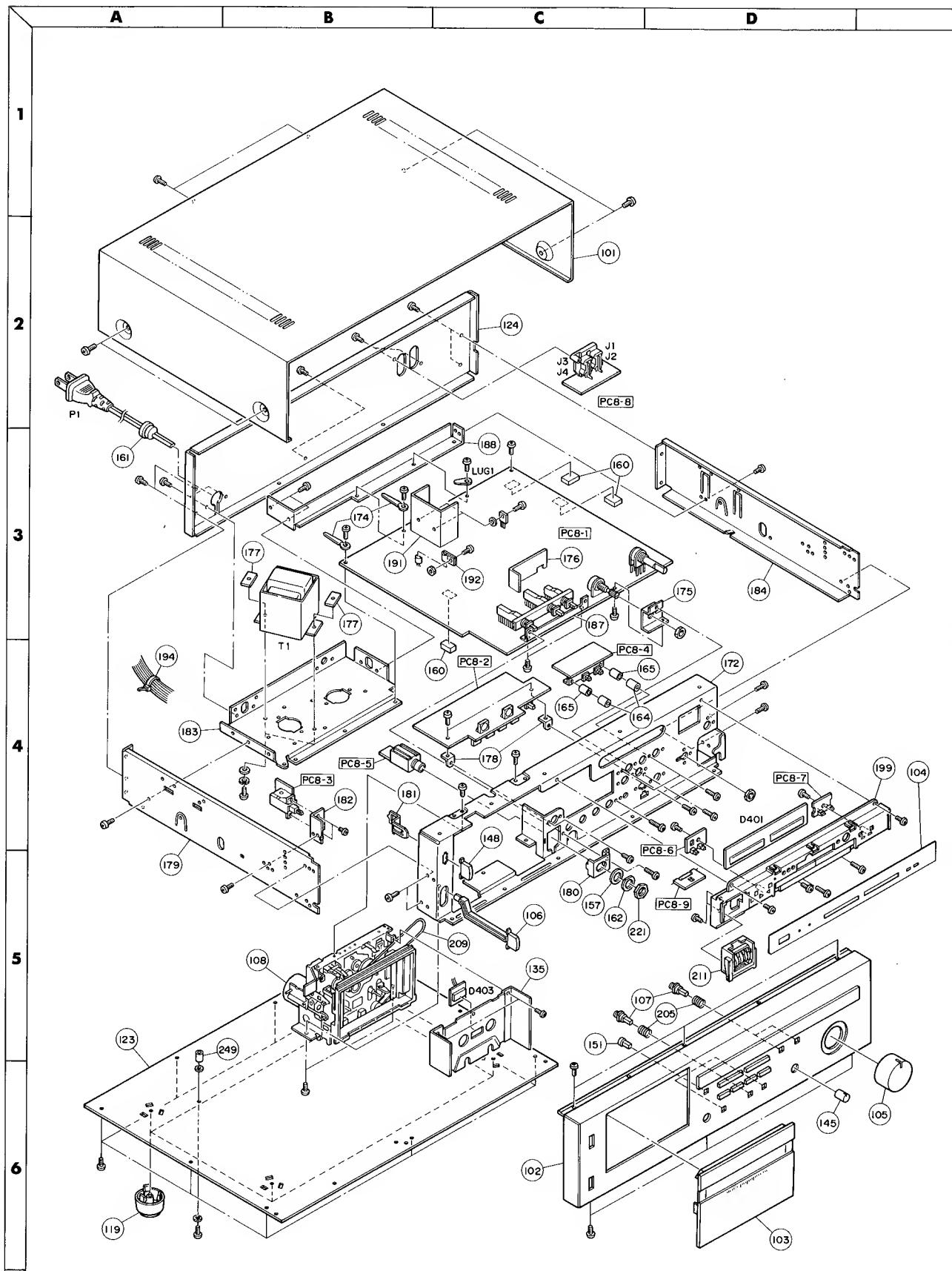
CASSETTE MECHANISM EXPLODED VIEW



CASSETTE MECHANISM PARTS LIST

Ref. No.	Part No.	Description
1	F245-011	Record Arm
2	F244-011	Switch Arm
3	FD28S-14	Cassette Support
4	FK568-11	Spring, Door
5	FC30K-11	Eject Lock Arm
6	FM296-11	Spacer
7	KY130-11	Connector, 8-Pin
8	UE13K-11	Switch
9	FU161-13	Head, Record/Playback
10	FU192-11	Head, Erase
11	FK572-11	Spring, Azimuth
12	FD23C-13	Spacer, Head
13	F105-020	Supply Reel Assembly
14	F123-026	Take-up Reel Assembly
15	FC29K-11	Spring Holder
16	FC29N-13	Head Base
17	FD24H-12	Brake Arm (L)
18	FD24K-12	Brake Arm (R)
19	FK18U-11	Spring, Brake
20	F014-075	Pinch Roller
21	FK18S-11	Spring, Pinch Roller
22	FK18V-11	Spring, Solenoid Arm
23	FK18T-14	Spring, Assist
24	FK11F-47	Spring, Back Tension
25	FN14B-12	Idler Gear
26	FK18M-11	Spring, Eject Lock Arm
27	F011-163	Chassis Assembly
28	FC29E-11	Spring, Cassette
29	PKA16112	Solenoid, F. FWD, REW.
30	FR17M-13	Clutch Assembly
31	FC29F-11	Bracket, Dumper
32	FP472-11	Dumper Assembly
33	FD23B-12	F. FWD/REW. Solenoid Arm
34	FP463-11	Sub-Belt
35	FF14A-11	Main Belt
36	PKA16113	Solenoid, Play
37	FD23E-12	Play Arm
38	FK18W-12	Spring, Play Arm
39	FR17N-11	Idler Assembly
40	FK18R-11	Spring, Idler
41	FC29G-11	Bracket, Door
42	FK18N-11	Spring, Head Base
43	FK18P-11	Spring, Assist Base
44	FC29M-12	Assist Base
45	FN14C-12	Play Gear
46	FD24G-12	Collar
47	FK11F-51	Spring, Flywheel
48	FR17E-11	Flywheel Assembly
49	UJ11S-11	Spacer
50	WH20C-01	Connector with Lead Wire, 4-Pin
51	FC29H-15	Bracket, Motor
52	F064-129	Motor
53	FP12T-12	Connector Panel

GENERAL UNIT EXPLODED VIEW



GENERAL UNIT PARTS LIST

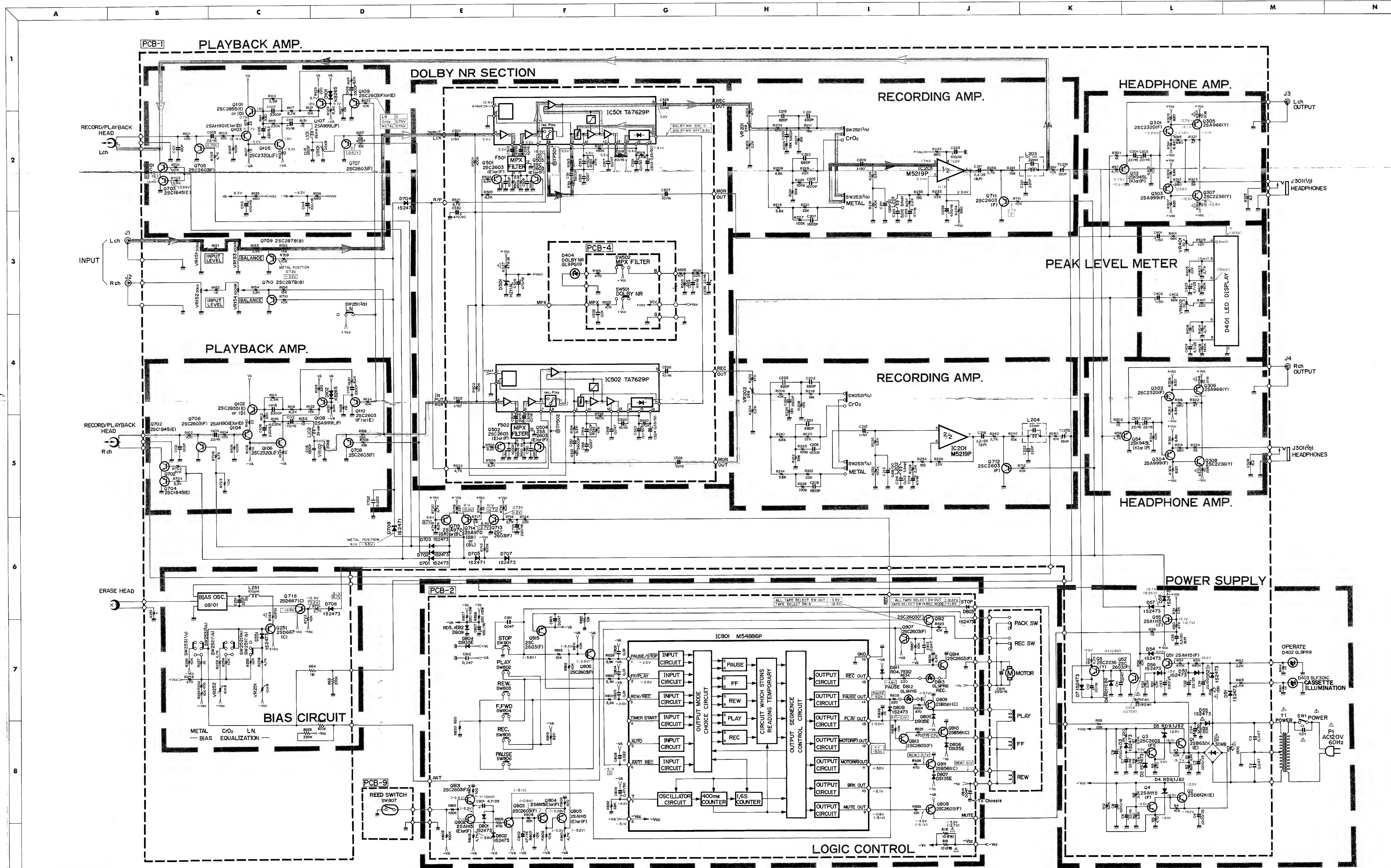
Ref. No.	Part No.	Description
103	A452-CD91B	Cover Assembly
104	A514-CD91C	Plate Assembly, LED Display
106	A662-CD91B	Push Button Assembly, Power
107	A662-CD91C	Push Button Assembly, Tape Selector, Dolby NR System, MPX Filter
108	3112-12801	Cassette Tape Recorder Mechanical Assembly
135	1514-15401	Dressing Plate
164	2132-5052	Spacer
165	2132-7016	Spacer
187	2219-7899	Bracket
199	2240-7181	Holder
205	2651-210187	Spring

ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
CHASSIS MISCELLANEOUS		
C815	5345-227C041	Capacitor, 220 μ F, $\pm 20\%$, 16V, Electrolytic
JM151	4242-034202	Jumper Lead, 3-Wire
PCB-1 MAIN P.C. BOARD		
RESISTORS		
R16, 18	5102-1004715	10 Ω , $\pm 2\%$, 1/4W, Fuse
CAPACITORS		
C54	5345-105-50	1 μ F, +75%–10%, 50V, Electrolytic
C101, 102	5353-101534	100pF, $\pm 5\%$, 500V, Mica
C105, 106	5345-227A0952	220 μ F, $\pm 20\%$, 6.3V, Electrolytic
C209, 210, 501, 502	5345-105F0952	1 μ F, $\pm 20\%$, 50V, Electrolytic
C211, 212	5345-L684M50	0.68 μ F, $\pm 20\%$, 50V, Electrolytic
C217, 218	5342-225F0951	2.2 μ F, $\pm 20\%$, 50V, Electrolytic
C219, 220	5359-8215851	820pF, $\pm 5\%$, 100V, Polypropylene
C223, 224	5359-6815851	680pF, $\pm 5\%$, 100V, Polypropylene
C301, 302, 303, 304	5345-226C041	22 μ F, $\pm 20\%$, 16V, Electrolytic
C525, 526, 527, 528	5345-106C0952	10 μ F, $\pm 20\%$, 16V, Electrolytic
INTEGRATED CIRCUIT		
IC201	5652-M5219P	M5219P
TRANSISTORS		
Q53, 54	5613-945L(K) or (P)	2SC945L (K) or 2SC945L (P)
Q105, 106	5613-2320L(F)	2SC2320L (F)
Q107, 108	5611-999L(F)	2SA999L (F)
Q301, 302	5613-2603(F) or (E)	2SC2603(F) or 2SC2603 (E)
Q303, 304	5611-1115(F)	2SA1115(F)
Q714, 715	5611-970(GR) or (BL)	2SA970 (GR) or 2SA970 (BL)
DIODES		
D4, 5	5635-RD9R1JB2	Zener, RD9.1JB2
D705, 708	5631-1S2471	1S2471
COILS		
L101, 102	5995-363156	
L201, 202	5933-70323	
MISCELLANEOUS		
F203, 204	5214-43	LC Components
P701	4443-060185	Connector, 6-Pin

Ref. No.	Part No.	Description
PCB-2 LOGIC CONTROL P.C. BOARD		
CAPACITORS		
C802	5345-476C041	47 μ F, $\pm 20\%$, 16V, Electrolytic
C806	5345-474F041	0.47 μ F, $\pm 20\%$, 50V, Electrolytic
TRANSISTOR		
Q815	5613-2603(F)	2SC2603 (F)
MISCELLANEOUS		
J801	4163-70996	Connector with Lead Wire, 8-Pin
JM701	4242-062007	Jumper Lead, 6-Wire

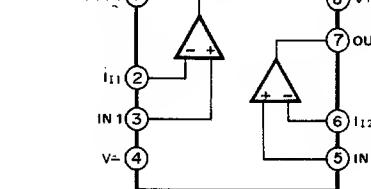
SCHEMATIC DIAGRAM



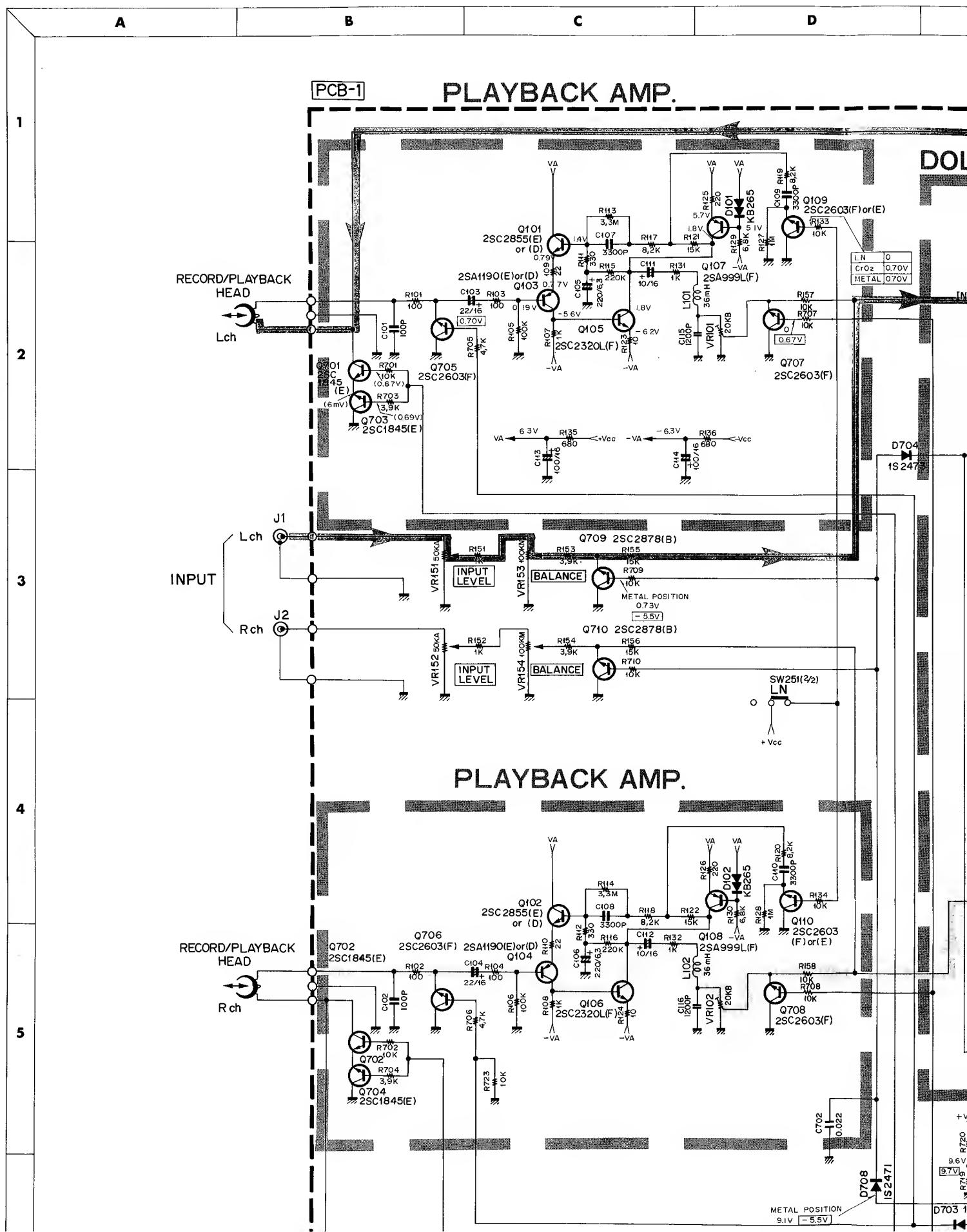
RECORDING SIGNAL (Lch)
PLAYBACK SIGNAL (Rch)

- ALL RESISTANCES VALUES ARE IN Ω .
 $k\Omega = 1000\Omega$, $M\Omega = 1000k\Omega$
- THE WATTAGE OF RESISTORS IS 1/4W UNLESS OTHERWISE NOTED.
- ALL CAPACITANCES VALUES ARE IN μF UNLESS OTHERWISE NOTED. $P = \mu F$
- V: DC VOLTAGE AT NO SIGNAL.
... V STOP MODE
... V PLAYBACK MODE
... V RECORDING MODE
- SAFETY-REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS. THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

IC201: μPC4558C

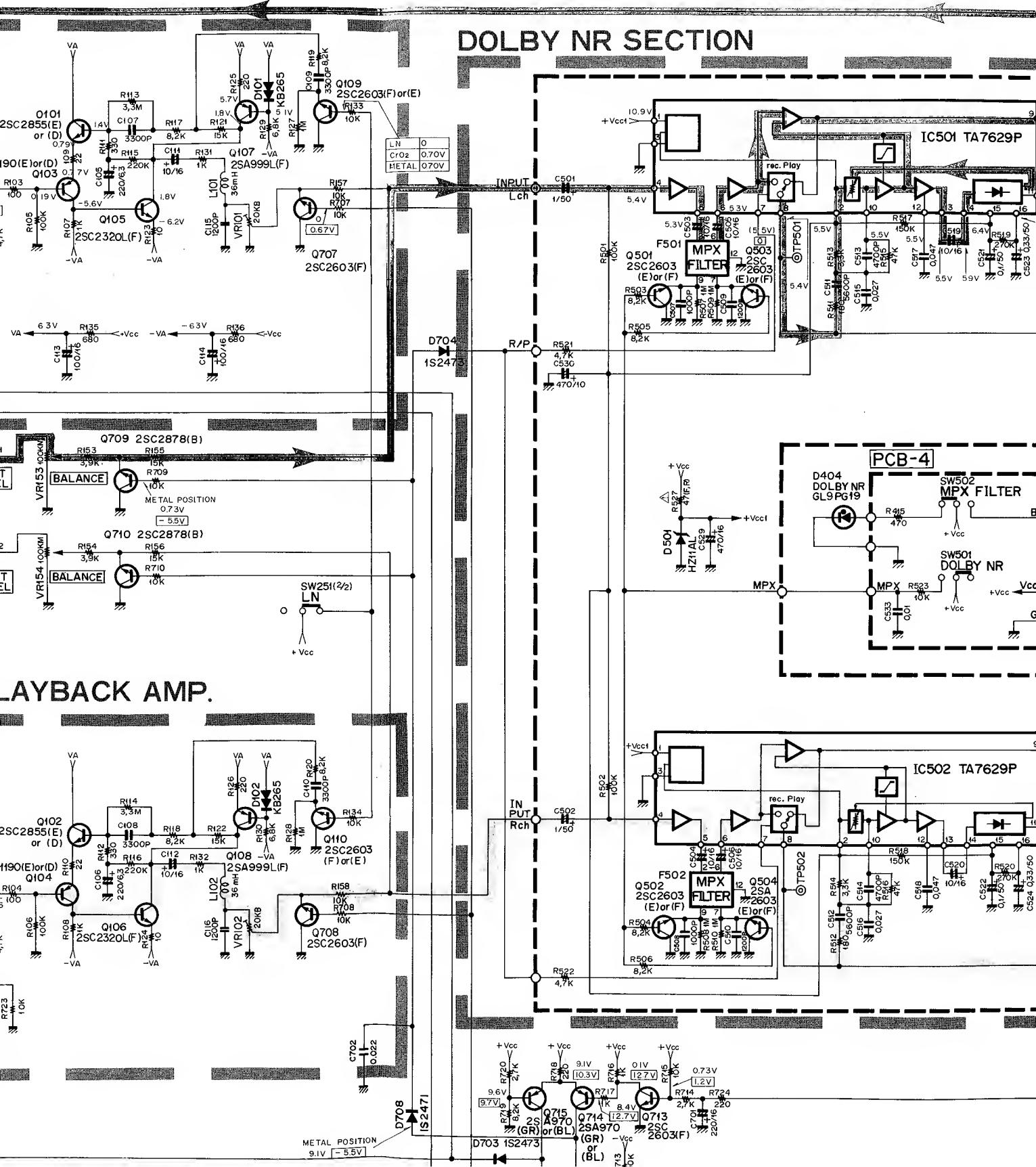


SCHEMATIC DIAGRAM



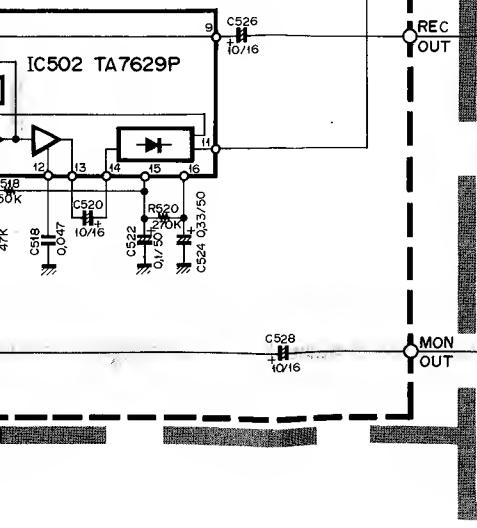
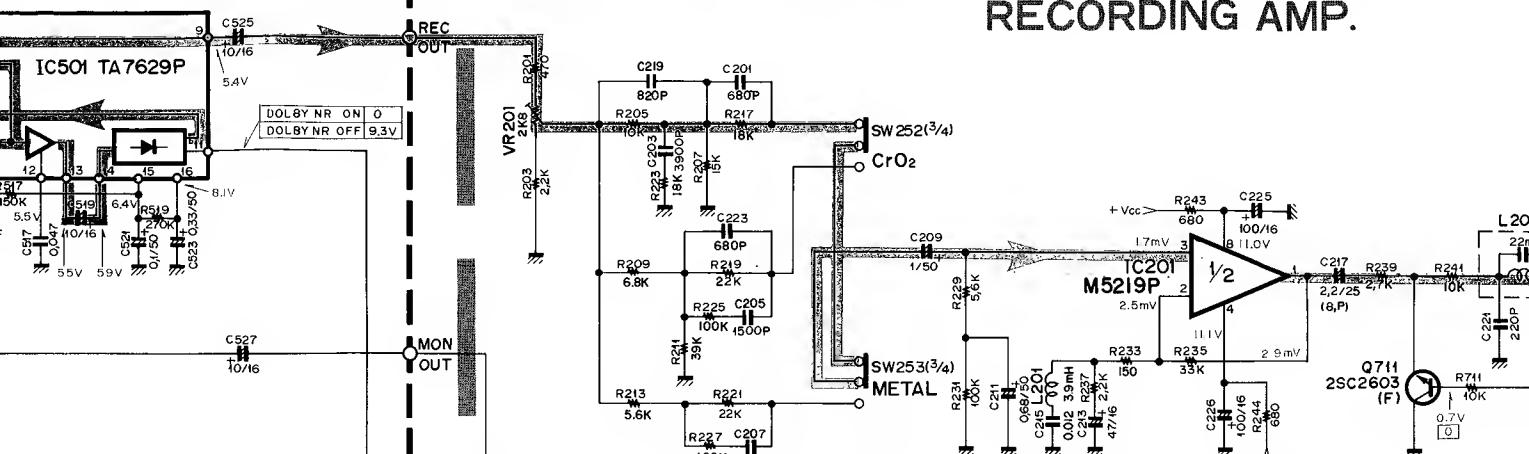
AYBACK AMP.

PLAYBACK AMP.



G**H****I****J**

RECORDING AMP.



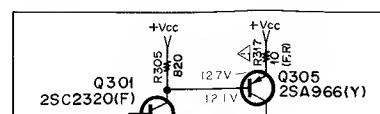
K

L

M

N

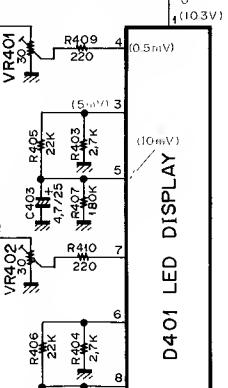
HEADPHONE AMP.



J3
Lch
OUTPUT

J301(1/2)
HEADPHONES

PEAK LEVEL METER

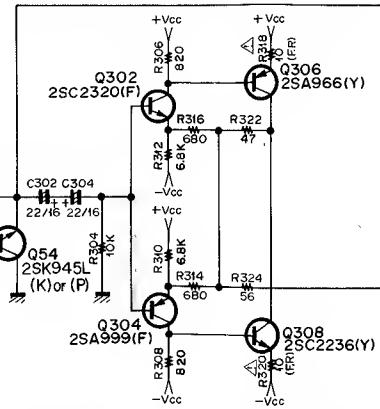


D401 LED DISPLAY

J4
Rch
OUTPUT

J301(2/2)
HEADPHONES

HEADPHONE AMP.



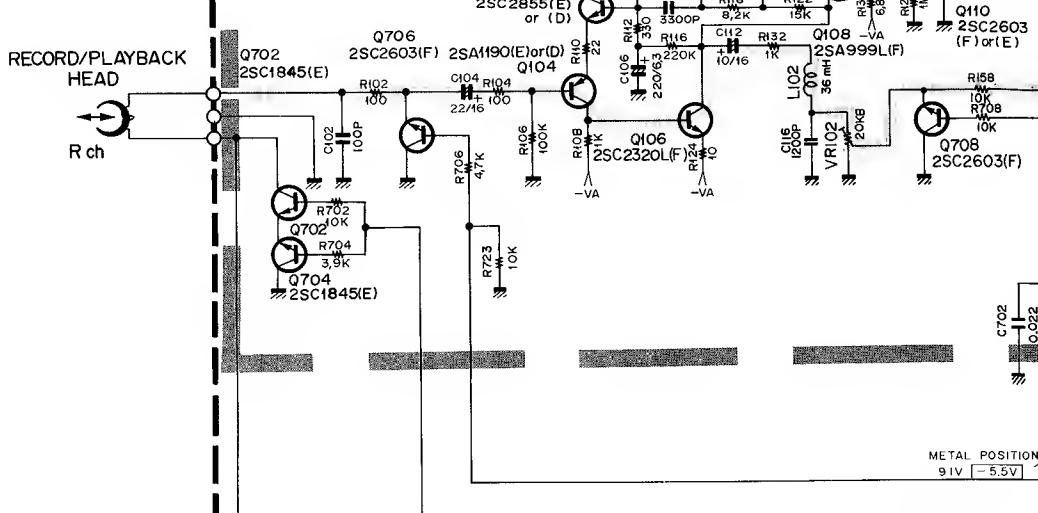
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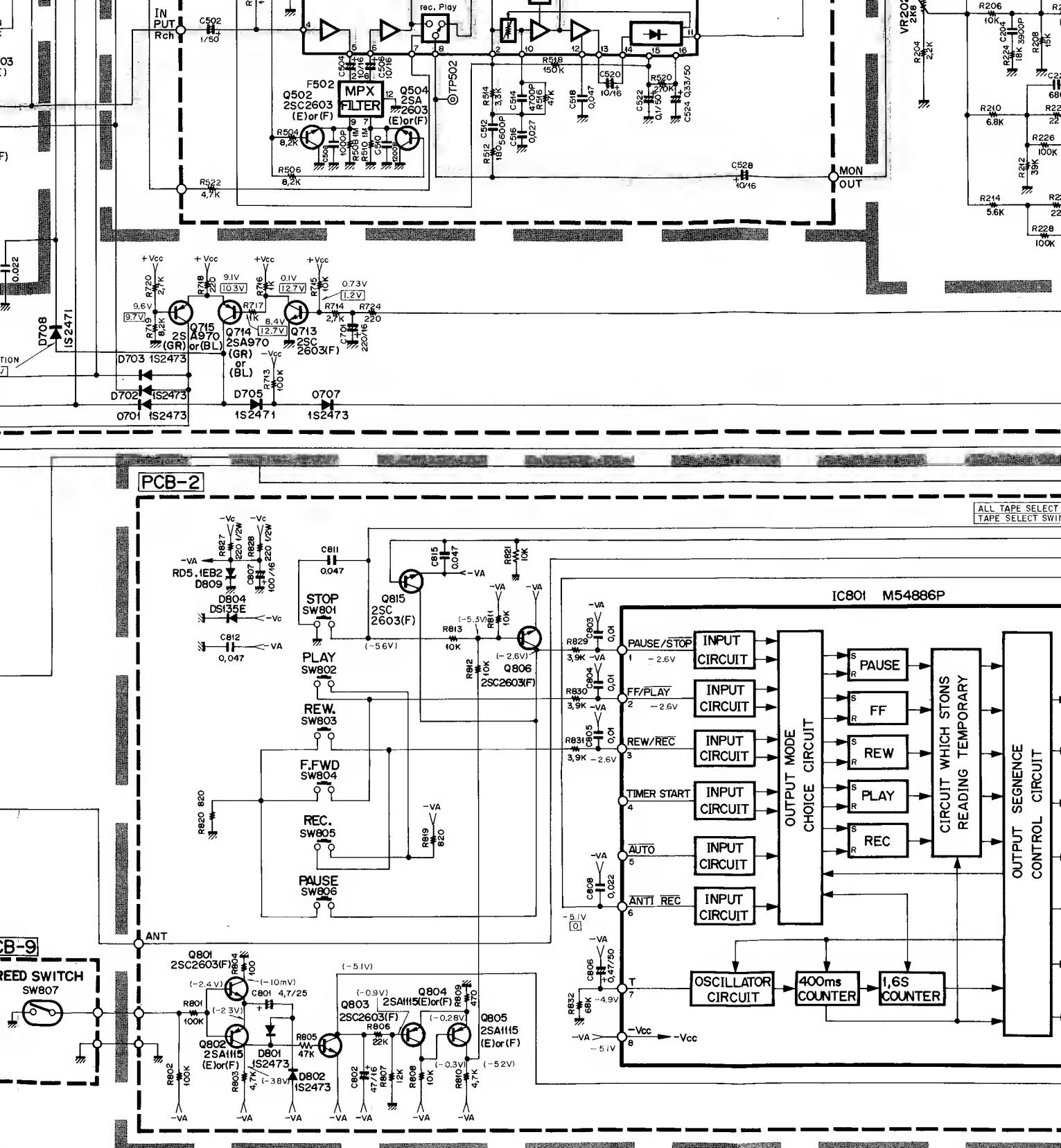
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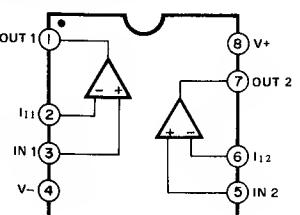
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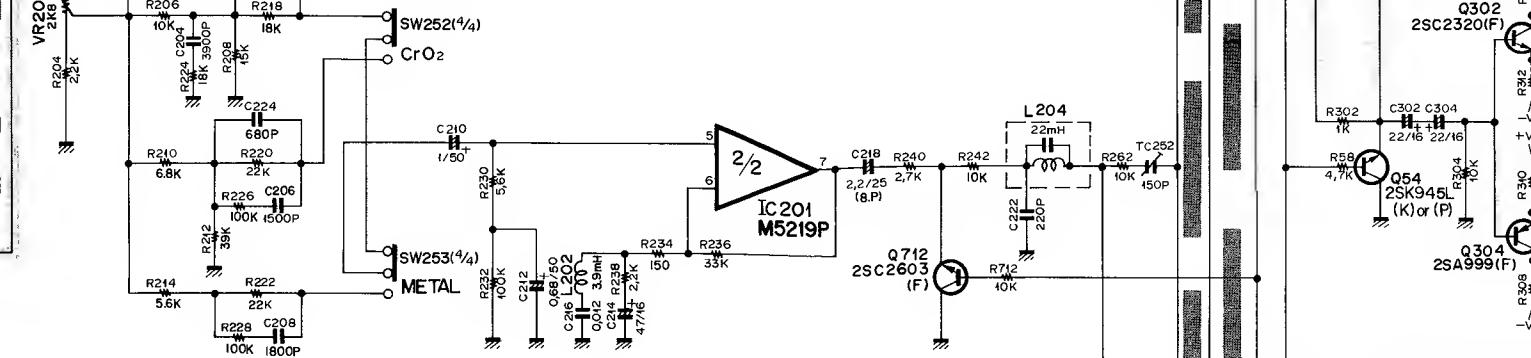




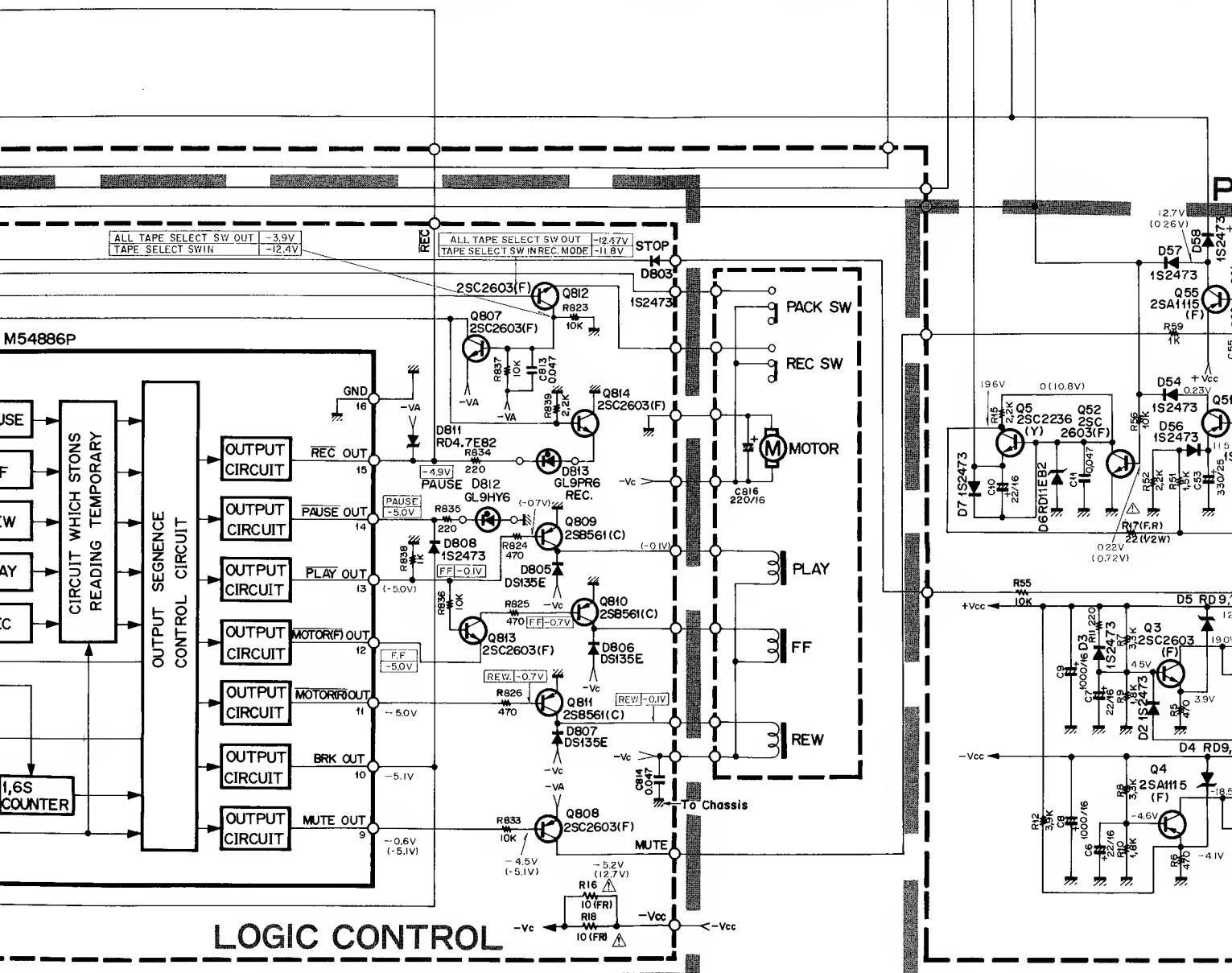
IC FUNCTIONAL BLOCK DIAGRAM

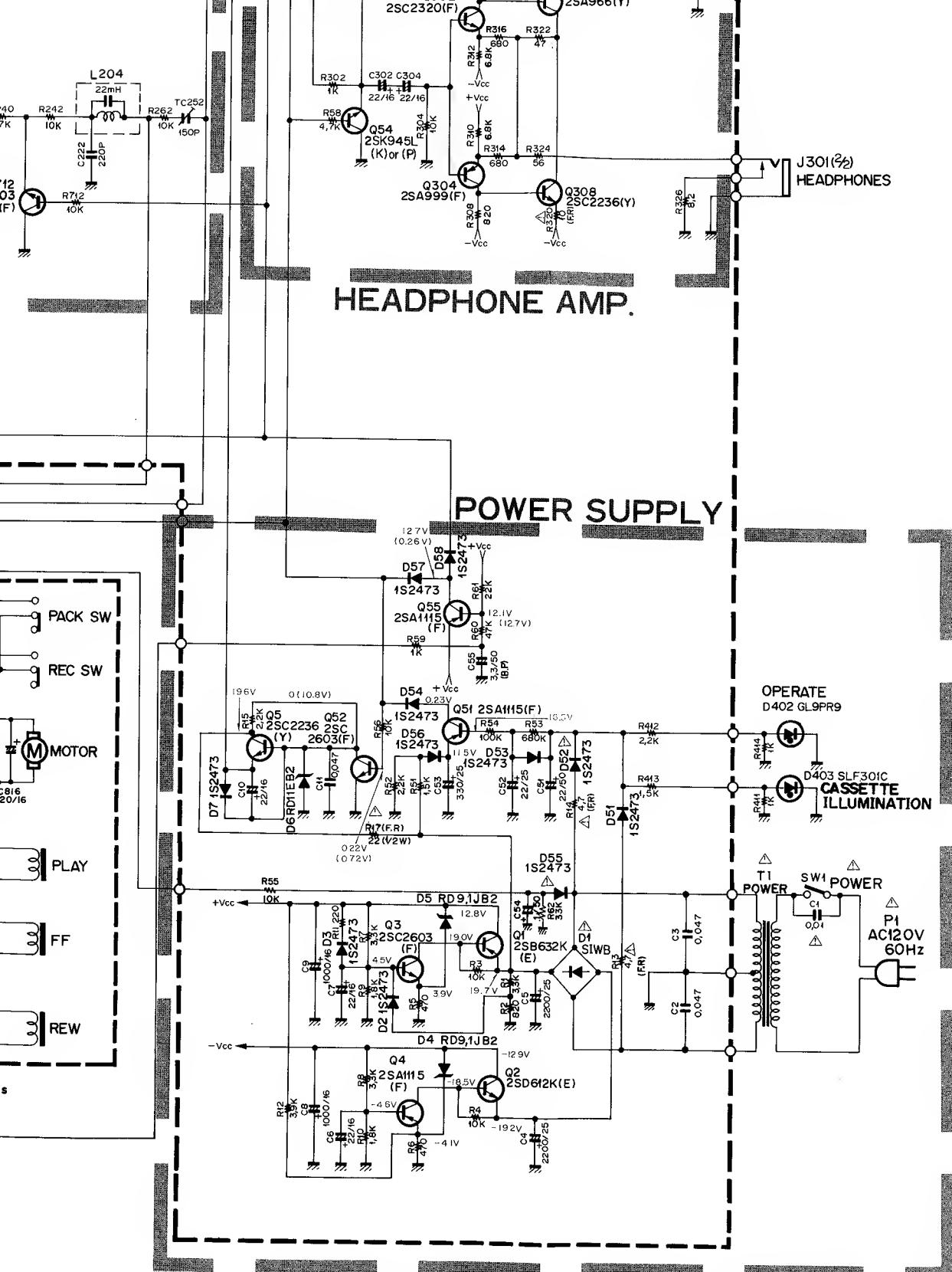
IC201: μ PC4558C



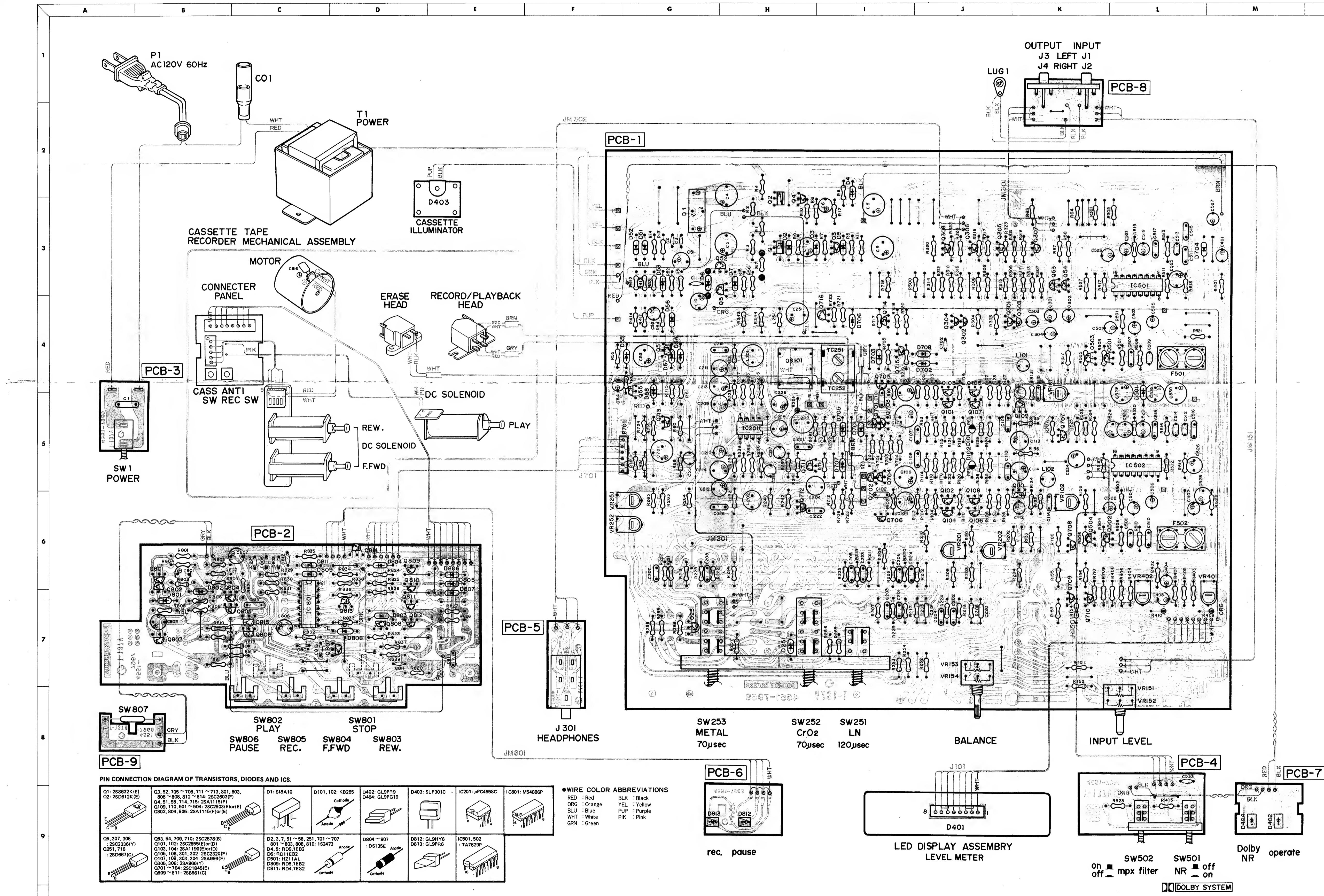


HEADPH

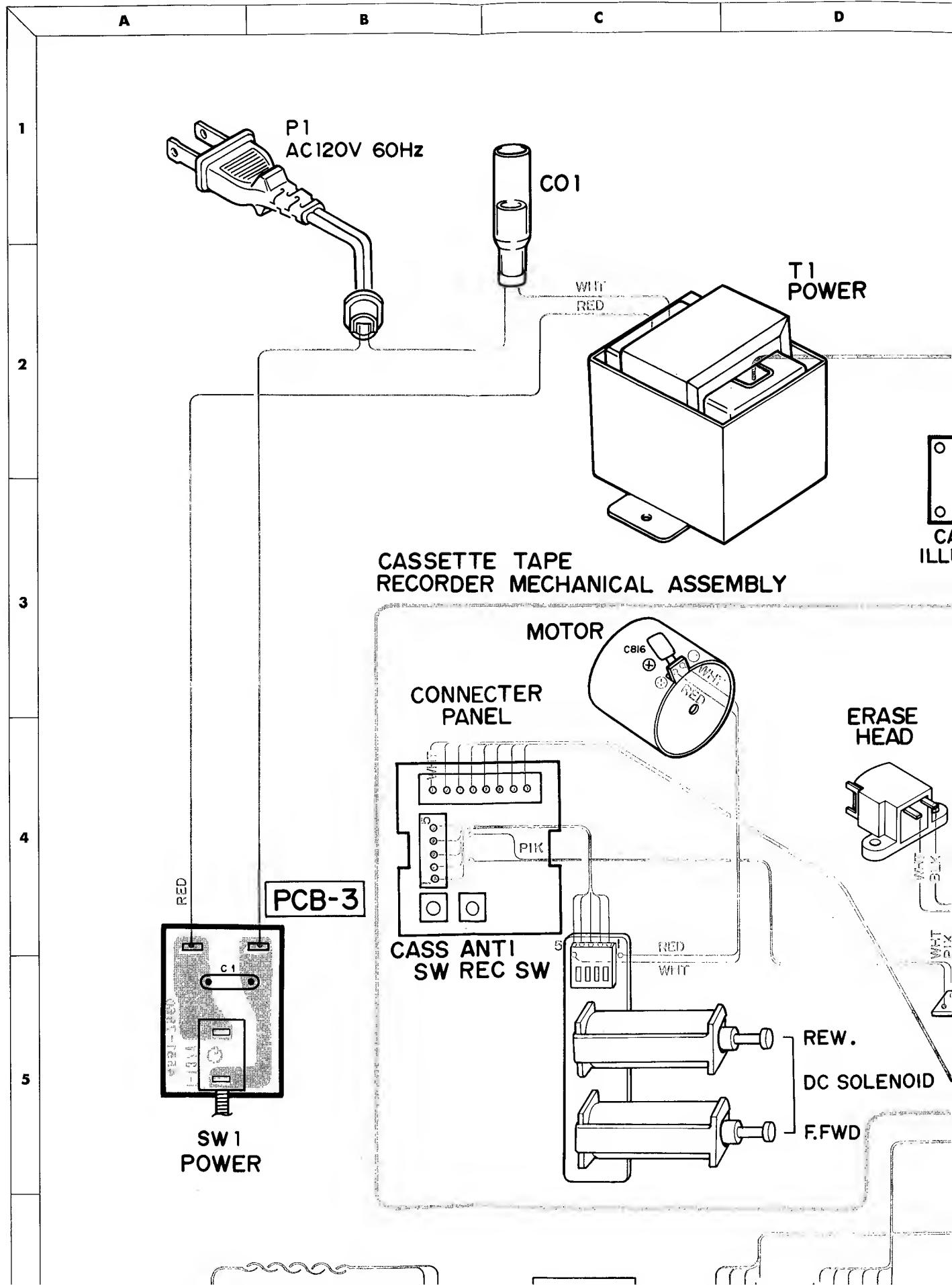


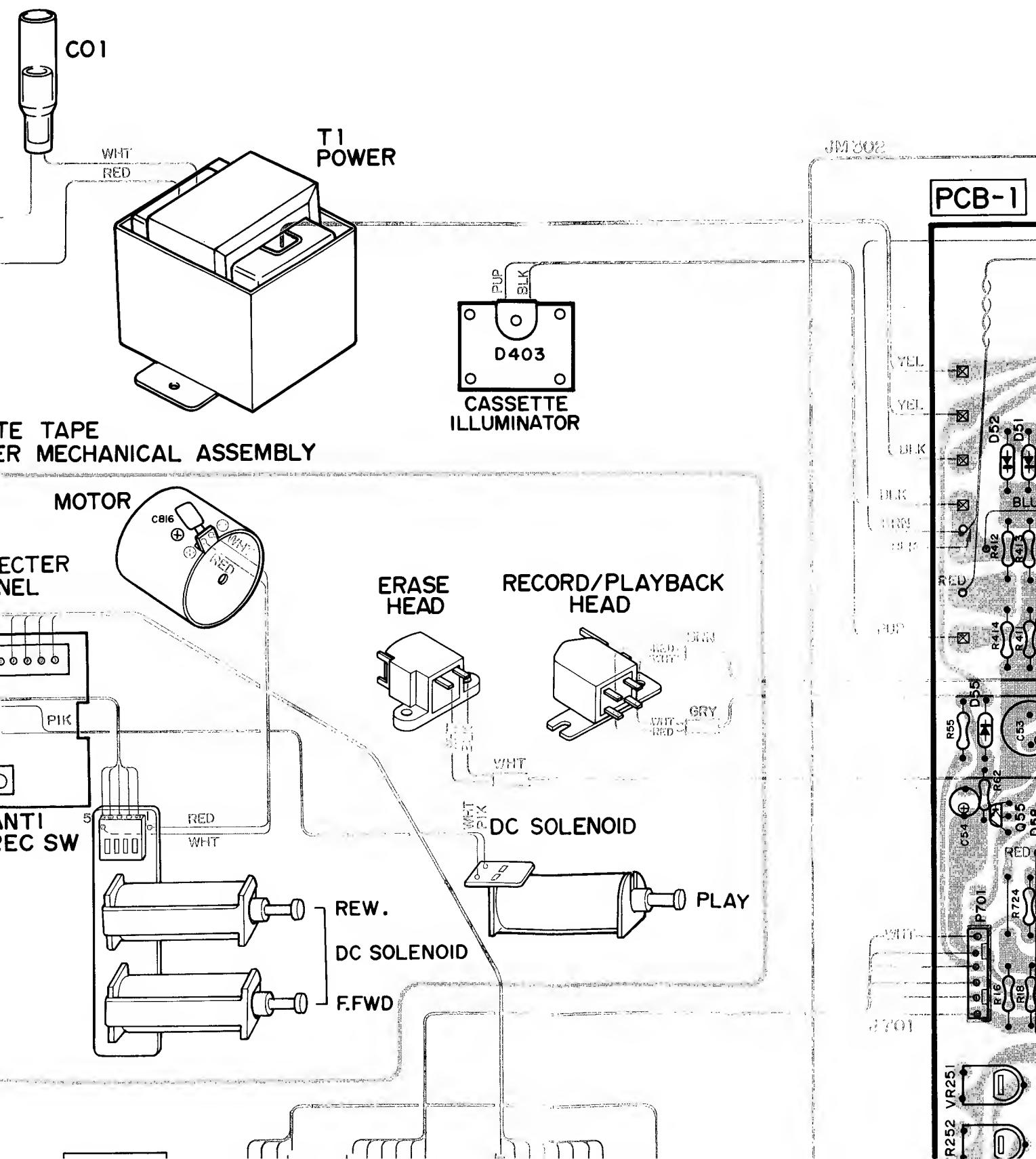


WIRING DIAGRAM



WIRING DIAGRAM



C**D****E****F**

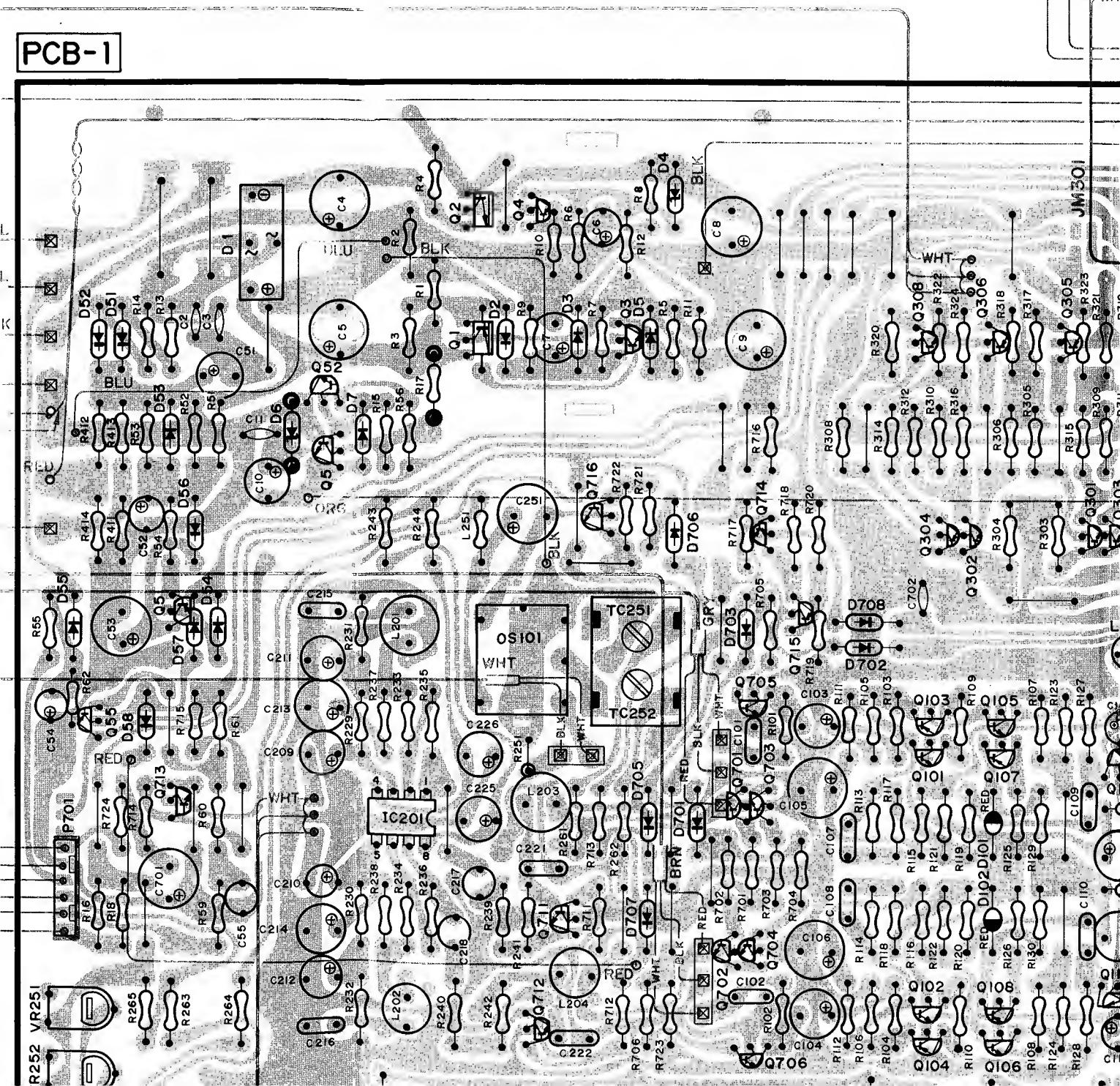
PCB-1

G

1

1

LUG 1

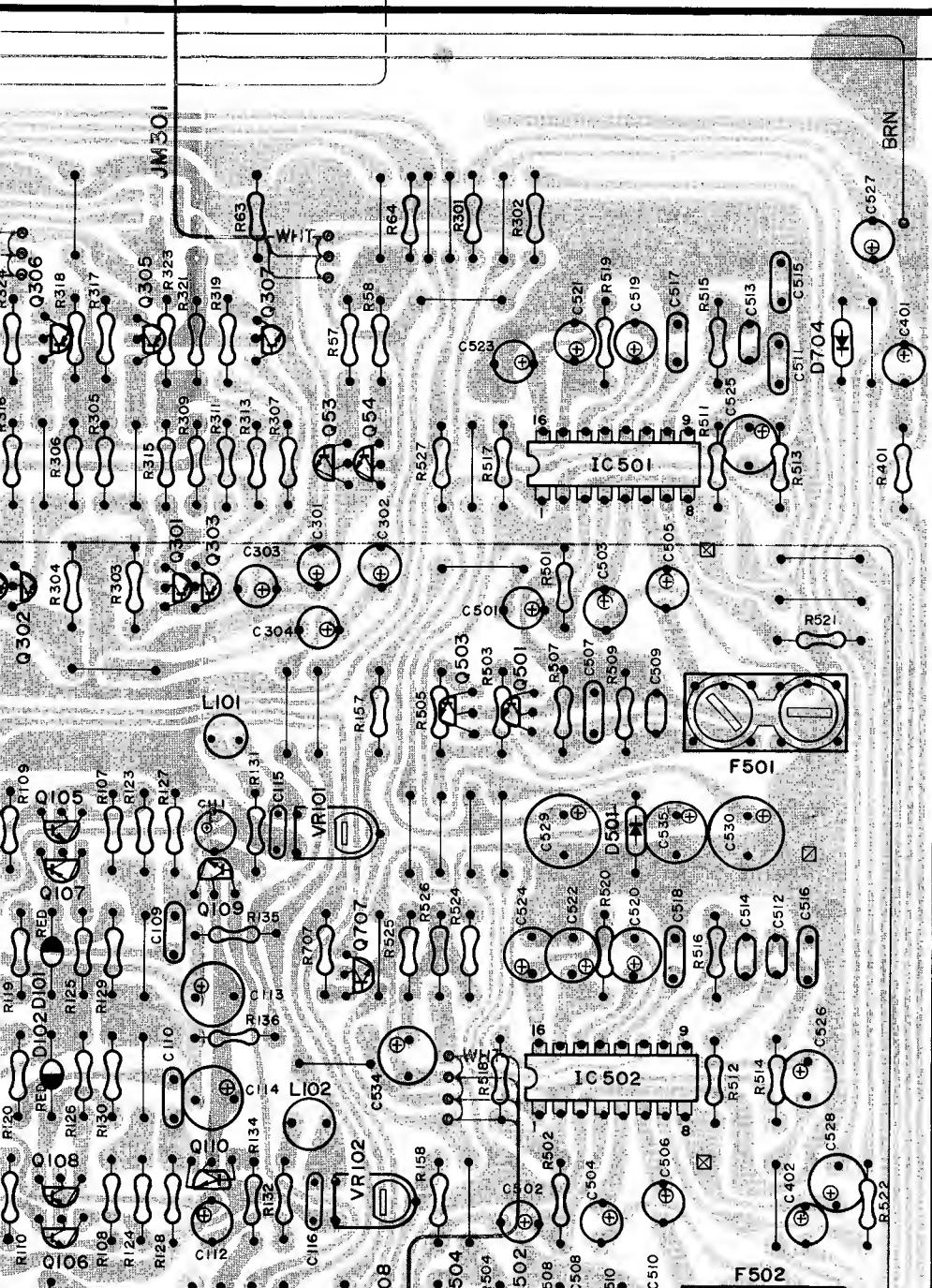
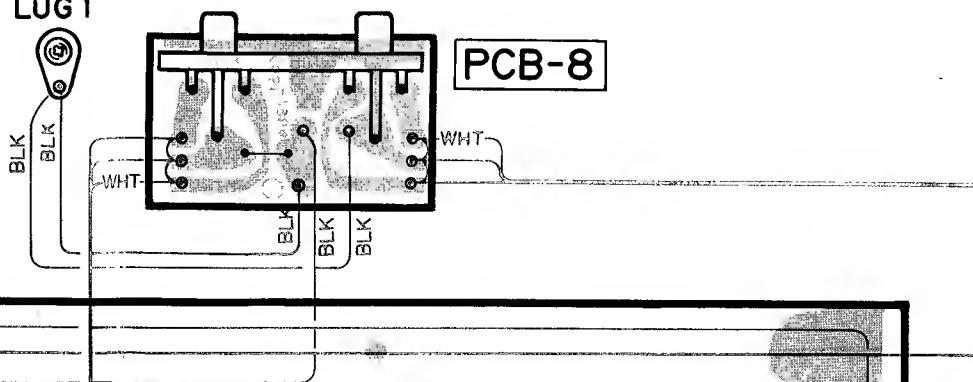


J **K** **L** **M** **N**

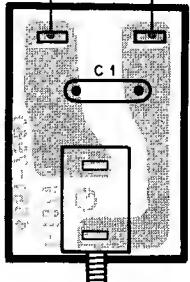
OUTPUT INPUT

J3 LEFT J1
J4 RIGHT J2

LUG 1

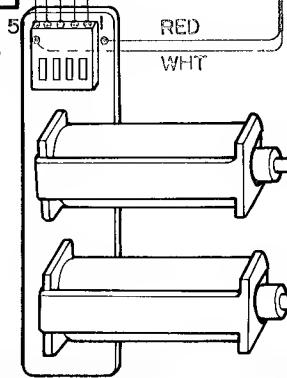


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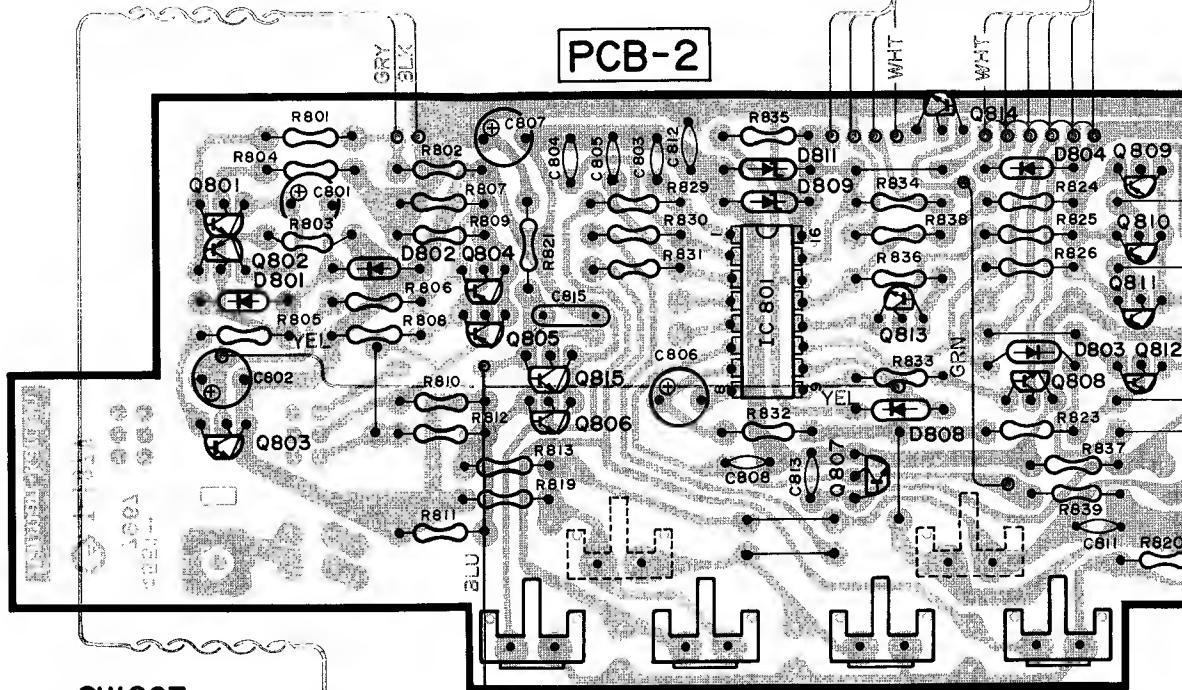
SW1
POWER

CASS ANTI
SW REC SW

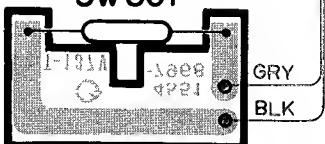


REW.
DC SOLENOID
F.FWD

PCB-2



SW807



PCB-9

SW802
PLAY

SW806
PAUSE

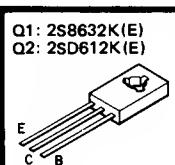
SW805
REC.

SW804
F.FWD

SW801
STOP

SW803
REW.

PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODS AND IC'S.

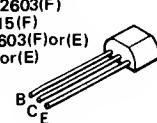


Q1: 2S8632K(E)
Q2: 2SD612K(E)

Q3, 52, 705 ~ 708, 711 ~ 713, 801, 803,
806 ~ 808, 812 ~ 814: 2SC2603(F)

Q4, 51, 55, 714, 715: 2SA1115(F)
Q109, 110, 501 ~ 504: 2SC2603(F) or (E)

Q802, 804, 805: 2SA1115(F) or (E)



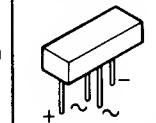
Q3, 52, 705 ~ 708, 711 ~ 713, 801, 803,
806 ~ 808, 812 ~ 814: 2SC2603(F)

Q4, 51, 55, 714, 715: 2SA1115(F)

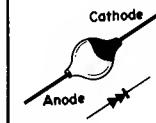
Q109, 110, 501 ~ 504: 2SC2603(F) or (E)

Q802, 804, 805: 2SA1115(F) or (E)

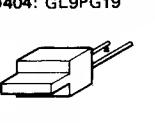
D1: SIBA10



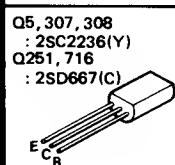
D101, 102: KB265



D402: GL9PR9
D404: GL9PG19

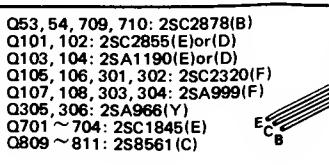


D403: SL



Q5, 307, 308
: 2SC2236(Y)

Q251, 716
: 2SD667(C)



Q53, 54, 709, 710: 2SC2878(B)

Q101, 102: 2SC2855(E) or (D)

Q103, 104: 2SA1190(E) or (D)

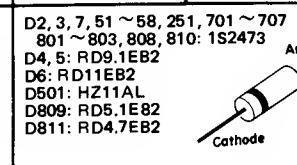
Q105, 106, 301, 302: 2SC2320(F)

Q107, 108, 303, 304: 2SA999(F)

Q305, 306: 2SA966(Y)

Q701 ~ 704: 2SC1845(E)

Q809 ~ 811: 2S8561(C)



D2, 3, 7, 51 ~ 58, 251, 701 ~ 707

801 ~ 803, 808, 810: 1S2473

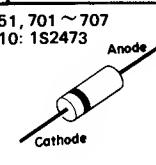
D4, 5: RD9.1EB2

D6: RD11EB2

D501: HZ11AL

D809: RD5.1EB2

D811: RD4.7EB2



D804 ~ 807

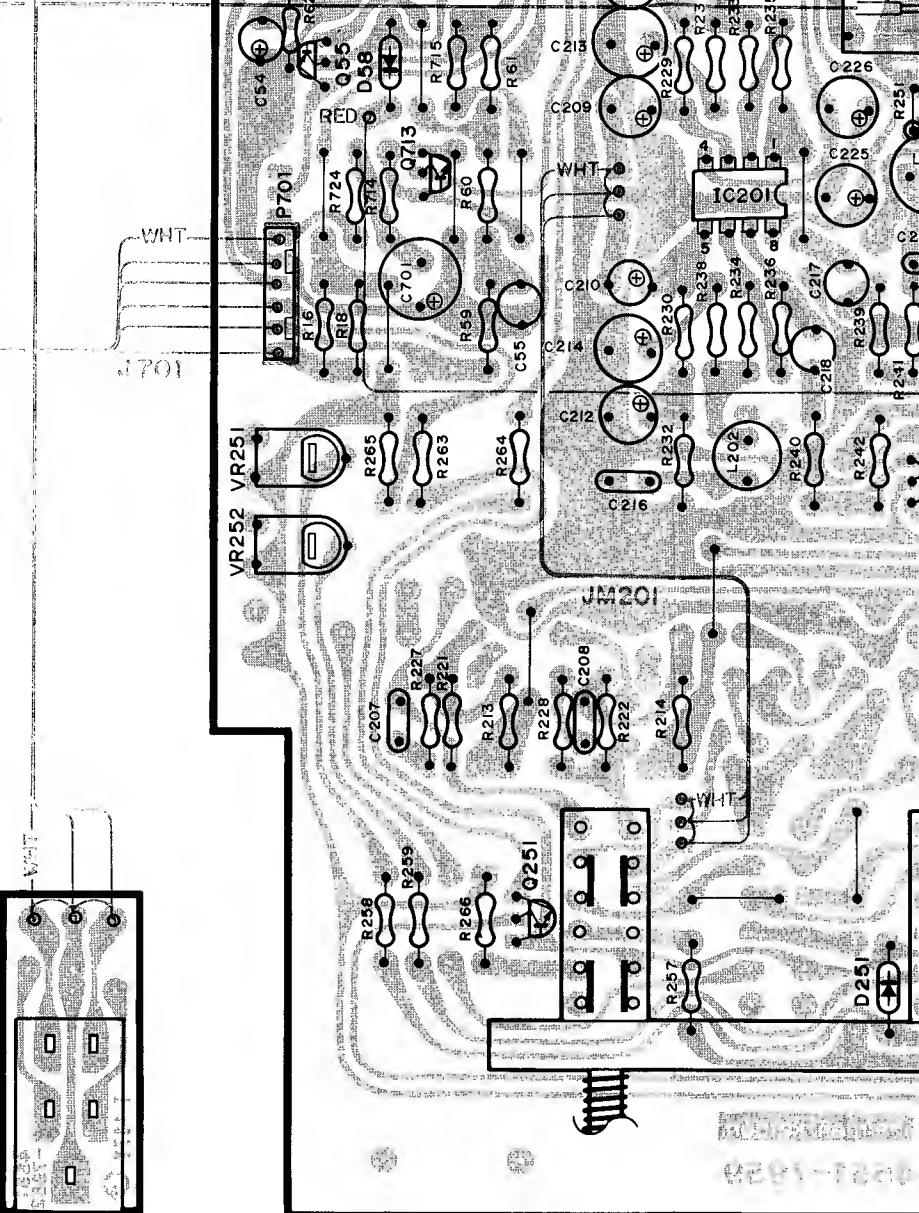
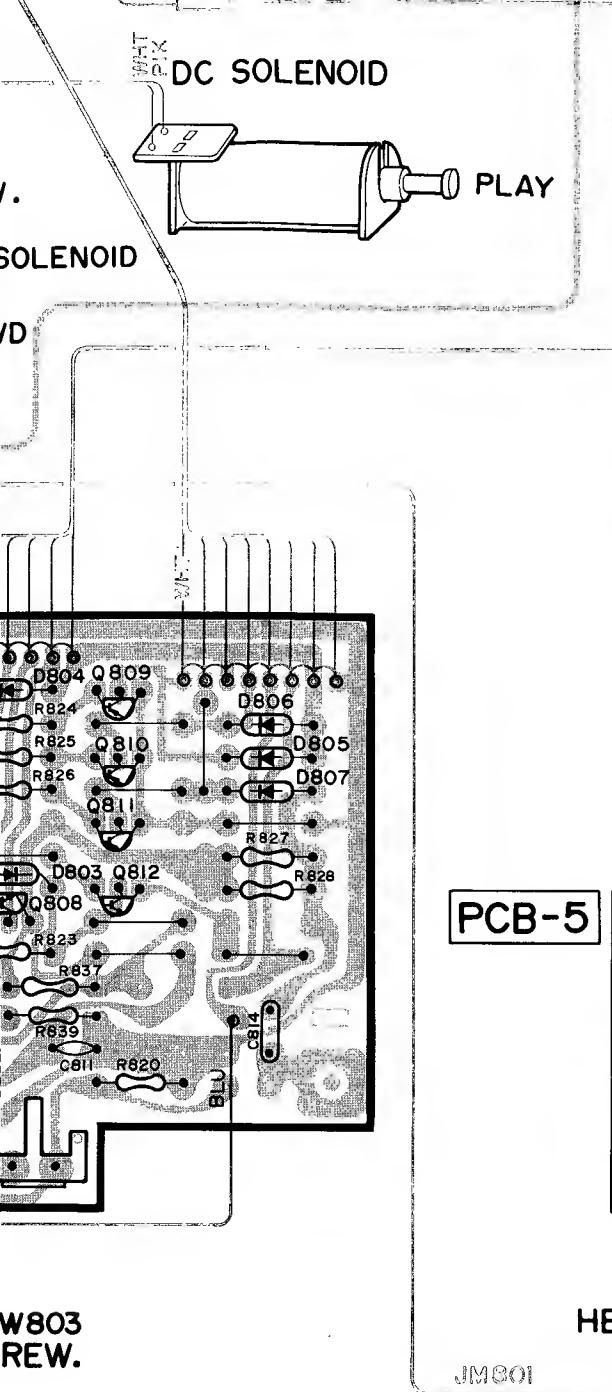
: DS135E

Anode



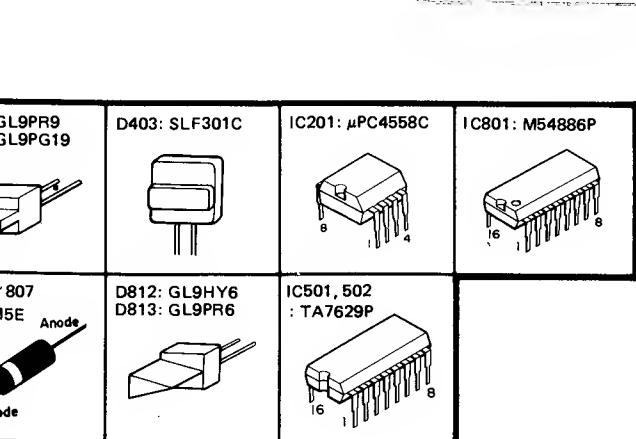
D812: GL

D813: GL



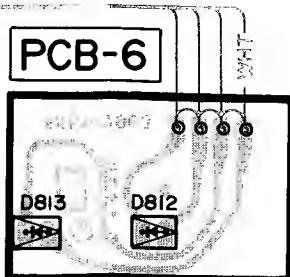
J 301
HEADPHONES

SW253
METAL
70 μ sec

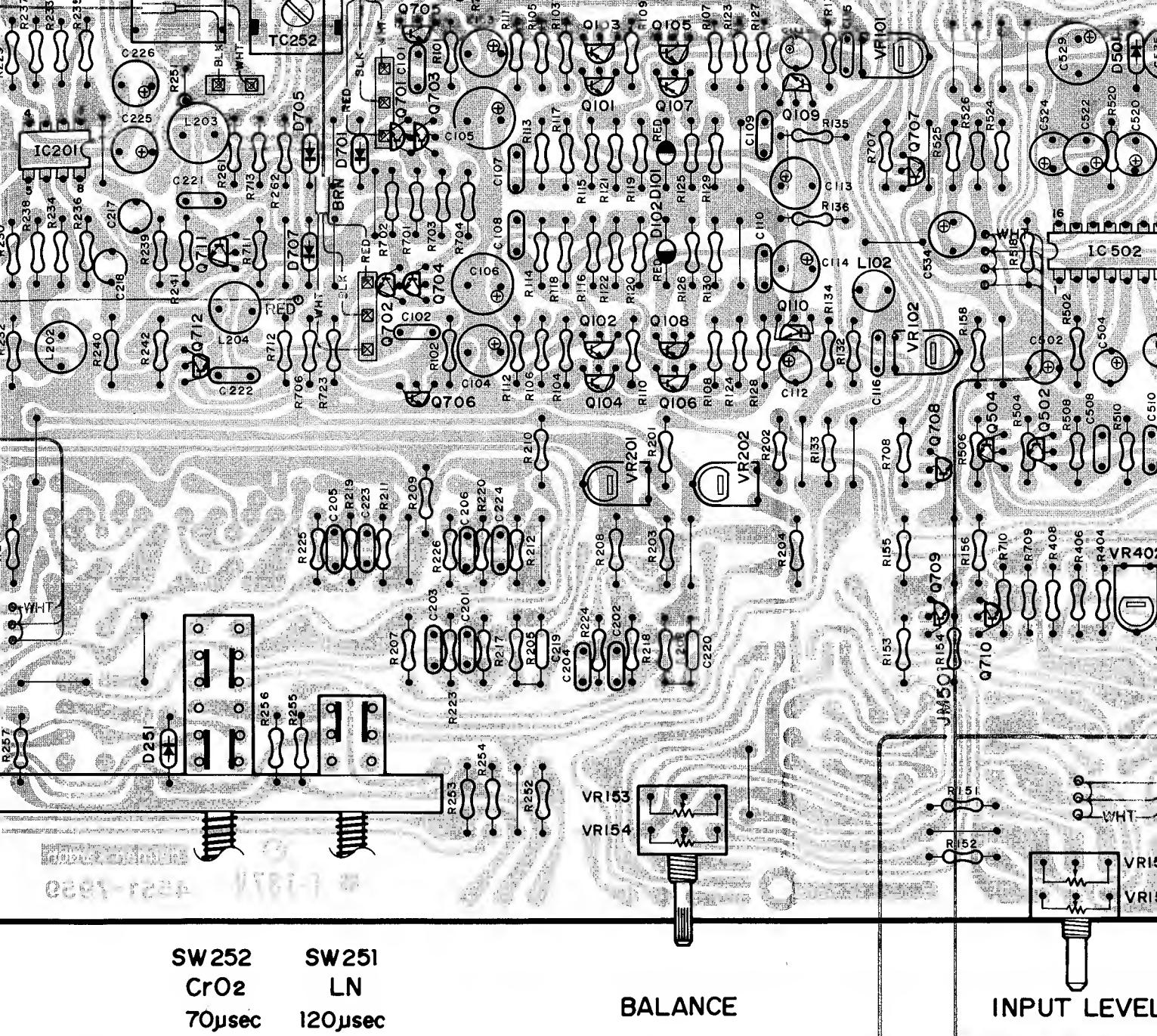


•WIRE COLOR ABBREVIATIONS

RED	: Red	BLK	: Black
ORG	: Orange	YEL	: Yellow
BLU	: Blue	PUP	: Purple
WHT	: White	PIK	: Pink
GRN	: Green		



rec. pause

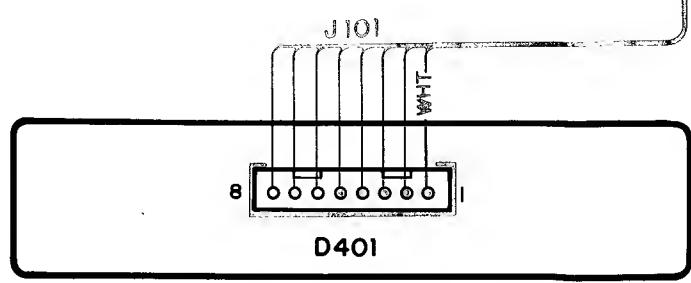


SW252
CrO₂
70usec

SW251
LN
120 μ sec

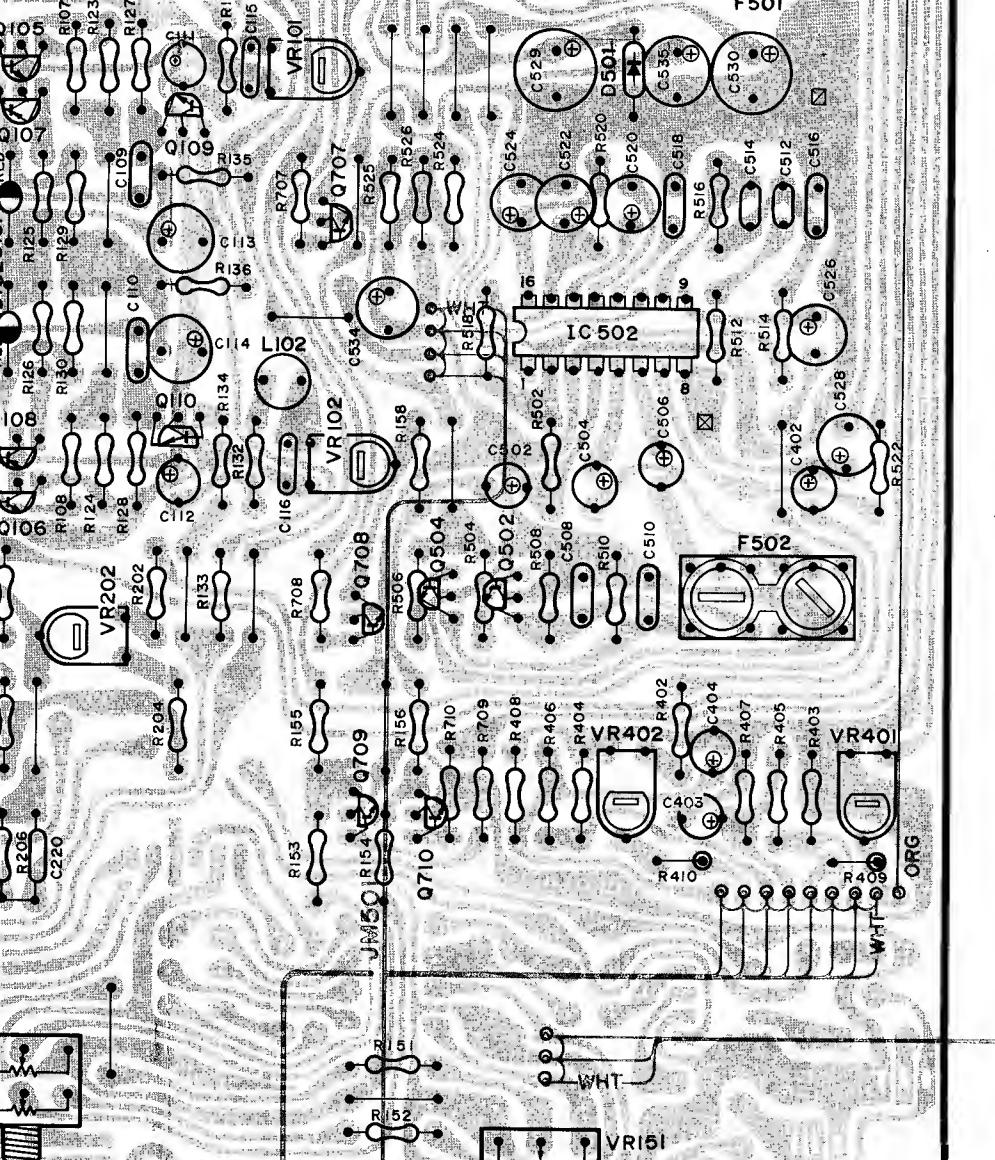
BALANCE

INPUT LEVEL



LED DISPLAY ASSEMBLY LEVEL METER

on off  mpx fil



ANCE

T

ASSEMBLY
ER

SW502 SW501
on mpx filter NR of
off or

DOLBY SYSTEM

DOLBY SYSTEM

Dolby
NR operate

PCB-4

PCB-4

PCB-7

RED